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SPECIAL ARTICLES

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BRANCHES AND AGENCIES THROUGHOUT THE DOMINION

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Variolae and Morbilli Four Centuries Ago

By William Renwick Riddell, LL.D., F.R.H.S., Etc.,
President, Canadian Social Hygiene Council.

ONE of the most learned and skilful of the physicians of the early part of the 16th century, Girolamo Fracastoro[1] of Verona, Italy, wrote a Latin treatise on Contagions, Contagious Diseases and their Treatment, which is a perfect mine of information concerning the theory and practice of medicine of his day.

In this paper, it is proposed to give some account of his views as to Variolae and Morbilli—these he always spoke of together[2]. He divides contagious diseases or fevers—they are all called "Febres"—into pestilential (or pestiferous) and non-pestilential—the first of the non-pestilential kind he deals with are what "those who translate the treatise of the Arabs call Variolae and Morbilli," commonly called "Varolae" and "Fersae."

Fevers of these kinds appear to attack every person (unless he prematurely dies) once in his life time, and as a rule, only once, generally in youth, seldom in adult years, very seldom in old age. The reason this is that these fevers consist in an ebullition[3] of the blood, and this ebullition is a purification from the infection contracted *in utero matris* from menstrual blood—"and so the blood is cleansed (defaecari) by a kind of separation (crisis) made by nature." It is because all carry away from the womb of the mother the menstrual infection, that nearly all suffer this contagion; and, therefore, too, it does not kill for the most part, but rather purifies (purgat). Children suffer less than adults, because if the infection is not cleansed out (expurgata) in youth, it is an indication that it is difficult of separation. Consequently "when the separation takes place at a more advanced age, it is effected with greater force and causes greater suffering, while this is less when the blood is softer (mollior) and better fitted for the removal of this infection." It happens but once because the infection has now been removed: in

the rare cases in which there is a second attack, the whole of the infection had not been removed by the first.

The symptoms are simple—if the child is fevered, this kind of fever going round (vagari), you may reasonably suspect that he has been infected, but it is not certain; therefore await other indications. If he has been with an infected person, if his eyes shine, if there is constant fever, fretful (morosa) rather than acute (mordax), these are the first symptoms: then inquire if he has ever had a fever producing exanthemata, for it is seldom that it attacks the second time: then see if there is anything driven out to the skin by nature—for generally about the fourth day or a little later, there appear certain scattered reddish spots, which afterwards concrete more distinctly into pustules, sometimes more humid and like vari, sometimes drier and like the exanthemata which come out on children from heat commonly called "Suffersurae." Later on, the pustules of either kind are filled with a sort of pituita[4] and sanies, and by them, the sickness is healed, most easily in children, with more difficulty in the older—"and that is why mothers are wont to desire these fevers to come to (advenire) their children when they are of tender age."

If the blood is too pituitous, the variform pustules are white, round, somewhat full of mucor; if it is more bilious, the pustules are drier—the analogue[5] of this contagion is to "that superfluous substance in the blood which is contracted from the menstruous blood. Wherefore this infection is analogous only to those in which the purification of the blood has not been made, for which reason it does not infect everybody or every humor." To understand this, we must bear in mind the current views of physiology—there were four humors in the body and upon the proper state and combination (crasis, temperamentum) of these health depended—Sanguis (Blood); Pituita or Phlegma (Rheum, Phlegm); Chole or Cholera (Yellow Bile), and Melancholia (Black Bile). In addition to these there were in the blood, superfluous substances—perissomata the Greek physicians called them, *e.g.*, urine, tears, etc. Fracastoro with most of this period believed that another superfluity came into the blood *in ventre matris* from detained menstrual blood, that it must be got rid of (secerni, secreted) and that these diseases were merely nature's method, the exercise of *vis medicatrix naturae*. He thought that only the pituita and cholera were affected: that by their relative predominance, they determined the force of the eruption, and consequently the precise form of the disease.

The prescribed treatment follows naturally from the theory that

we have to do with a "certain separation and sequestration of menstrual infection from the blood"; the practitioner is specifically told "you are to have no other intention[6] (*i.e.*, object in view), than not to impede expelling nature, but rather to help her if necessary." Some will impede by bleeding, some by purgative medicines; but if you see the fever to be such that it is causing or is about to cause these expulsions, then abstain from all medicines and let nature act by herself[7], unless perchance at the first you have observed great fulness—for in that case, it is permissible to use a purgative drug, not however unduly active (acri et molesto).

As nature is to be assisted, in the first place procure a room properly heated, cover the sick person with rugs (pannis), and let these be red[8], light diet, no wine. Carefully examine what causes are preventing expulsion whether density of flesh or crassitude of materia; nature is to be assisted by medicines which open the pores of the skin and attenuate materia.

Such are caricae[9] (figs) foeniculus (foeniculum, fennel), apium (celery or parsley) and the like, made into a decoction—some add lentils, others tragacanth. "This may be wondered at by some critical person, seeing that lentils and tragacanth have an opposite effect, for they thicken and inspissate the blood and obstruct the (pores of the) skin." But the explanation is simple enough—sometimes the ebullition of the blood is temperate, some times it is not, but either greater or less than it should be. If then it is temperate, and the humor which is heated is too crass, neither lentils nor tragacanth should be added; but it will be sufficient to administer those which attenuate or subtilize where it is greater than it should be or what is execreted is seen to be too thin; then to add lentils and tragacanth is right because in that way the ebullition is tempered, "which also should often be done in the case of sputum when it is more than is proper."

NOTES.

[1]Girolamo Fracastoro or Fracastorio, (Latinized, Hieronymus Fracastorius (1483-1555) equally accomplished as physician, mathematician, philosopher, astronomer, poet and Latinist); he invented the name "Syphilis," and first gave it to the world in 1530 in his Latin hexameter poem, "Syphilidis sive Morbi Gallici libri tres," published at Verona in that year, but written in 1521 at his country house at Cafi, 15 miles from Verona, to which he had been driven by the plague which was raging in the city.

His work on Contagions was written some years later: it appears in all editions of his works—my own copies are of the editions of 1637, Geneva, Iacobus Stoer, and of 1584, Venice, Apud Iuntas.

[2]It is said that small-pox was first specifically mentioned by Aaron Ahren of Alexandria in his Pandects of Medicine, which were translated into Arabic.

Fracastoro says: "The Greeks do not seem to have dealt with these diseases (Variolae and Morbilli) under any other name than 'Exanthemata.'"

While known in Asia from time immemorial, the first mention of small-pox in England is by Hollingshead, who erroneously gave that name to the Plague of 1377: it did not create alarm in England until after 1667, and it was about half a century later that Lady Mary Wortley Montagu introduced the Turkish practice of inoculation. Jenner first inoculated with cowpox in 1796, and published his first book on Vaccination in 1798.

[3]According to Fracastoro's theory, every contagion is caused by putrefaction, which sends off very minute and insensible particles—these if hot and viscid agglutinate into "seminaria," seed-beds or nurseries of disease.

[4]"Pituita" or "Phlegma" is one of the four "humors" of the body. See later in the text.

[5]"Analogue" means (in substance) a suitable field of action.

[6]"Intention" properly means the object or purpose of a course of treatment, *curationis intentio*, a translation of Galen's *ho tes iaseos skopos;* but the word was often applied to the treatment itself.

In my time we had still "healing by the first intention" and "by the second intention," *i.e.*, with or without suppuration.

[7]Fracastoro is free from the obsession so long and so extensively prevalent of bleeding on all occasions; he was not wholly exempt from the idea that bleeding is often useful.

[8]Every one will remember John of Gadsden's direction to hang the sick-room of the small-pox patient in red and cover him with red rugs—the practice of keeping such a patient in a close, hot room went out within a century. John cured the son of the King of England by his method without leaving a pock-mark.

[9]Caricae were figs, generally dried, from Caria. Macrobius, in Lib. II., cap. 16, of his Saturualia, gives many kinds of figs, amongst them "Carica." On this word the well-known commentator Isaac Pontanus has the following note: "Caricarum multa apud Columellam et Palladium mentio, videnturque ita dictae a Caria regione. . . ." Columella and Palladius make frequent mention of Caricae; they seem to be so called from the region Caria. . . ." "Fennel" we call "foeniculus" in the masculine rather than the neuter gender.

Venereal Disease Situation in Canada

BY DR. J. J. HEAGERTY, *Chief Division of Venereal Disease Control, Dominion Department of Health, Ottawa.*

THE campaign against venereal disease in Canada, which is being carried on conjointly by the Dominion and Provincial Governments, has been in operation for a period of three years. This campaign may be divided roughly into five main divisions:

1. Education.
2. Treatment.
3. Social Service.
4. Law Enforcement.
5. Statistics.

EDUCATION:

The object of education in this campaign is not so much the dissemination of knowledge of venereal disease as the development of standards of conduct and the formation of character.

A knowledge of venereal disease alone will not prevent illicit sexual intercourse nor its consequences; there must be, in addition, sound ideals which act as a basis for the control of sexual appetite.

Our campaign of education comprises general information of the prevalence and danger of venereal disease and special information appertaining thereto for groups of individuals, such as parents, young men, young women, physicians, clergymen, nurses, employers of labour, etc.

Information is disseminated by means of publications, lectures, moving pictures and the attractoscope.

PUBLICATIONS:

Publications of the Dominion Department of Health include a brochure of general information for the practitioner, a manual of diagnosis and treatment of gonorrhoea and syphilis; a manual of laboratory diagnosis and of the Wassermann reaction; pamphlets for parents, young men and women; pamphlets for sailors, captains and ship's surgeons and for those suffering from gonorrhoea and syphilis, and a pamphlet for the prevention of gonorrhoeal

opthalmia in children. Through the kindness of Dr. John H. Stokes, Chief of the Section of Dermatology and Syphilology of the Mayo Clinic, the privilege was obtained of distributing his valuable work, "To-day's World Problem in Disease Prevention," to the medical profession throughout Canada. Abstracts of Current Venereal Disease Literature are distributed monthly to clinics and physicians who are interested in the subject.

Posters have been placed in public places calling attention to the dangers of venereal disease and advertising free treatment in clinics throughout the country. In addition, the provinces distribute venereal disease literature.

LECTURES:

Physicians, laymen and women, through the Dominion and Provincial Departments of Health and The National Council for Combating Venereal Disease are giving lectures to general audiences and special groups.

MOVING PICTURES:

There are two types of picture being shown; the storied film, such as "Damaged Goods," "The End of the Road," "Fit to Fight," and "How Life Begins," etc., and a purely scientific film depicting the lesions, diagnosis and treatment of gonorrhoea and syphilis. The former have been shown throughout the Dominion in every city of any size; the latter are being shown exclusively to young men throughout the Province of Quebec. In the Province of Quebec the clergy have taken an active interest in the work and have provided free halls in each of the parishes throughout the province. Announcement of the film showing is made from the pulpit and all young men of the parish of sixteen years and over invited. The attendance is invariably good. Up to the present the film has been shown to 60,000 young men. While being run off, the film in interpreted by a physician and in this way definite and clear information is given of the dangers of illicit sexual intercourse. The attractoscope, which automatically displays suitable lantern slides is used at county fairs and exhibitions. These might with advantage be placed in waiting rooms, parks and store windows. The newspapers have given very valuable aid through editorials and articles calling attention to the activities of the various bodies engaged in the work.

There has been considerable discussion as to the relative value of the storied film and the purely scientific film. The chief objection

levelled at the storied film, such as "Damaged Goods, "The End of the Road," etc., are:—

1. They are commercialized,—a purely money-making proposition.
2. They are "fictional,"—a scientific fact is sandwiched in between a lot of doubtful fiction, in order to make it more readily assimilable.
3. They point a moral,—sufficient to damn any film with young people.
4. Their object palpably is to frighten,—whereas, it is only the already timid who are frightened.
5. They are extreme.—all storied films must be extreme to hold the attention.
6. They are exaggerated,—only the gravest lesions are shown.
7. Their effect is transient,—they are only one of hundreds of films which young people see year in and year out and are quickly forgotten.

Offsetting these manifest disadvantages is the very great advantage that the subject of venereal disease is brought to the attention of the entire community from one end of the country to the other and in no other way could it be so brought with equal effectiveness.

The objection to the purely scientific film which depicts the lesions, diagnosis and treatment of gonorrhoea and syphilis, are:—

1. It cannot be shown to mixed audiences.
2. No advantage gained by showing treatment and laboratory diagnosis.
3. They appeal to fear.
4. They cause venereophobia.

The advantages claimed are:—

1. They are not commercialized,—all showings are free.
2. They are purely scientific,—not exaggerated, nor faked in any way.
3. Showing treatment and laboratory examination hits the quack.
4. They act as feeders for the clinic.
5. They produce a lasting effect.

Personally, I am greatly in favour of showing this film to young men. I believe it to be productive of more good than any other form of propaganda.

The incidence of venereal disease is greatest in young men between the ages of nineteen and twenty-five years. Our propaganda to be effective must anticipate this life period. Very little

is accomplished through lectures to men of twenty-five years and over, for their character and habits have long since been formed and nothing we can say or do will effect a change. Similarly lectures to adult mixed audiences, whose interest in venereal disease is purely academic, do not do much to diminish the incidence of venereal disease. Our best work is done through lectures to young men between the ages of fourteen and nineteen. The young man is the chief offender and the chief victim, and we should concentrate our efforts on him.

Parents, mothers particularly, and educators fear that lectures on the subject of venereal disease to boys of fourteen may be productive of more harm than good. In this respect we must not forget that, when judiciously discussing the subject of venereal disease with boys of fourteen, we are not opening up a new subject, and one with which they are entirely unfamiliar, but are merely clarifying and making useful a knowledge which the vast majority of boys already possess; for the majority of boys receive their first knowledge of sex between the ages of nine and eleven years. This knowledge, gained as it is in the streets, is decidedly harmful. We cannot anticipate this knowledge. We cannot lecture to boys of tender age on the subjects of illicit sexual intercourse and venereal disease as the judgment at that age is not sufficiently ripe to grasp the significance of our remarks and draw the desired conclusions. We can, however, do a great deal to offset that knowledge by our lectures before habits which are the direct result of that knowledge are formed. Similarly with young girls, our lectures on the ideals of womanhood, motherhood, deportment, the dangers of looseness, etc., must be given at an early age to be effective. Every boy and girl of sixteen years of age should have definite knowledge of the baneful effects of illicit sexual intercourse. Without that knowledge boys and girls are not equipped to face the realities of life, and unless we have given them that knowledge, we have not done our duty by them. Up to the present we have reached only very few boys and girls of the desired age. In that respect, at least, our campaign has been a failure.

Of the question of sex education in schools, very little need be said; for nothing of this nature has as yet been attempted in our schools. This subject was thoroughly threshed out at the "All American Conference on Venereal Disease," and the conclusions adopted were:—

"That education in relation to sex is but a phase of character

education as a whole and cannot be accomplished at any one time. It must be a progressive process of care, guidance, instruction and example. This fact, together with the intimate relationships of the members of the family, place upon the home the chief responsibility for sex education of children during the earlier years."

"In the case of older children and adolescents, the responsibility for training and guidance in relation to sex is shared by all educational agencies having to do with young people."

Whatever our methods of educating the public—pamphlets, lectures, films—all of them unquestionably have their appointed place, and all are of value. As time goes on it will be possible to place a more exact value on each type of educational propaganda and we will be able to use each with greater effect.

Education, next to the development of character in the home, is the chief factor in the work of venereal disease prevention. Wider publicity through the pulpit and greater co-operation generally on the part of clergymen, physicians and persons in an administrative, legislative and judicial capacity are greatly needed.

TREATMENT.

The object aimed at in the provision of free treatment is two-fold, viz., cure of existing cases and prevention of the occurrence of new cases. As contagion is, in the vast majority of cases, direct; it is manifest, that the greater the number of cases which are rendered non-infective, the fewer the number of new cases that will arise. Treatment is, therefore, not only beneficial to the individual but to the community at large.

Treatment to be effective must be provided for all classes of individuals. Our policy has been to offer the best means both of diagnosis and treatment available, free of charge, to every venereal patient. While it is true that the provision of free treatment means in many cases financial loss to the medical profession, it was felt that an attempt to confine the clinic to any special class of individuals would be fatal to success. Free treatment for venereal disease has been provided for in clinics and institutions, such as jails and reformatories, and through local physicians for cases remote from clinics. Beds are provided for cases requiring hospitalization. In establishing the clinics the following points were aimed at:—

1. To treat, promptly and effectively, the individual suffering from venereal disease.
2. To reach and render non-infective the greatest possible number.

3. To place the specialist in venereal disease diagnosis and treatment within the reach of every infected individual.
4. To make complete cure possible for everyone infected.
5. To diminish the spread of venereal disease in the community.
6. To act as an educational centre for the prevention of illicit sexual intercourse and the prevention of venereal disease.

There are fifty-two clinics for the free treatment of venereal disease in the Dominion stretching from coast to coast and distributed as follows:—

Nova Scotia	5
New Brunswick	8
Quebec	8
Ontario	13
Manitoba	4
Saskatchewan	8
Alberta	4
British Columbia	2

The two points of importance that were considered in locating the clinic were accessibility and privacy. These two factors were met in some cases by placing the clinic in a hospital, as part of the general clinic, and in other cases by placing it in an office or other public building. In the small town the clinics, if situated in an office or other building, quickly becomes known to the general public and is not patronized; for patients fear to be stigmatized if seen entering the building. For this reason it has been found better in small towns to place the clinic in hospitals as part of the general outdoor, or in association with other clinics, as in a health centre or provincial dispensary.

The advantages of making the venereal disease clinic part of the general clinic or operated in conjunction with other clinics are:—

1. It shows the public that venereal diseases are treated in exactly the same way as other diseases which helps to develop a proper mental attitude on the part of the general public towards those diseases.
2. Specialists in the various branches of medicine are always at hand for consultation.
3. Clinics are operated more cheaply.
4. Students have greater opportunity for studying these diseases.
5. Many patients seek treatment in the general clinic, who are unaware of the fact that they are suffering from venereal disease, and are promptly referred to the venereal disease

division; no time is, therefore, lost in bringing them under treatment.

6. The established institution with a reputation to maintain is apt to take greater pains with its patients.

The poorest type of clinic is that which is situated in a building which is used for no other purpose than a clinic. The attendance in that type of clinic is nil.

Clinics are open as a rule in the afternoon. It is only with the greatest difficulty that physicians can be persuaded to give their services in the evenings and without a doubt the evening is the time best suited to the treatment of men. In most cases it is difficult or impossible for men to get away during the afternoon. Clinics should be open afternoons for women and children and evenings for men. Unfortunately, very few of our clinics are open evenings. All clinics are equipped with laboratory apparatus sufficient for dark field and smear examinations. Other examinations, bacteriological, serological and pathological are made in provincial laboratories which have been specially equipped for the work as part of the campaign. Examinations are made free of charge in these laboratories for all physicians. The personnel of the clinic consist in most cases of a physician, social service nurse and orderly.

The success of the clinic depends in no little measure on the tactfulness and friendliness of the physician and nurse. There are, at present, being treated in our clinics roughly ten thousand patients and new patients are coming in at the rate of about one thousand a month. The majority of those attending our clinics are being treated for syphilis. Patients suffering from syphilis remain under treatment much longer than those suffering from gonorrhoea; hence the number of cases of syphilis under treatment at any given time will be much greater than the number of cases of gonorrhoea. The form of treatment and the preparations used are a matter of individual choice for the medical officer in charge of the clinic and no attempt whatsoever has been made to adopt any one particular line of treatment, for it is felt that with standardization the treatment of the patient as an individual will cease and the results will be harmful.

Treatment of prisoners in institutions, such as jails and reformatories, is carried on in all of the provinces with gratifying results. Treatment of the type of individuals who find their way to penal institutions is of the utmost importance, as it is just this class which includes criminals, vagrants and prostitutes, who are

active spreaders of infection. Hospitalization is provided in all of the provinces for cases needing indoor treatment. In some provinces hospitals are obliged by law to provide accommodation for these cases. There is, as we know, considerable objection on the part of hospital authorities to the admission of cases of venereal disease; but hospital authorities should recognize the fact that these diseases are worthy of the same consideration and treatment as other diseases.

Social Service.

Every clinic should have a social service nurse. Her work is of value to the patient, the clinic and the community. By her kindly interest she helps the patient to continue treatment until cured and encourages attendance of other members of the family at the clinic for examination and treatment, if necessary. She helps the clinic by keeping records, by aiding in administration and developing the efficiency of the clinic. The community, she helps through her visits to the home and the information which she disseminates there. One of the most important phases of social service work is the control of the delinquent girl who finds her way to the clinic or is under treatment in an institution. The tactful and interested nurse can and does help this type of girl in many ways. She encourages her, stimulates a renewal of self-respect, finds employment for her, and by removal to a new environment gives her an opportunity for rehabilitation.

In rural communities the district nurse does very valuable social welfare work. She visits the homes, inspects the children in the schools and through her efforts numbers of cases of venereal disease are brought into the city clinics and hospitals which otherwise would not have been treated. The social record sheet, which is kept by the nurse, is of great value in doing follow up work, tracing the original source of infection and contacts; in estimating the value of propaganda and social welfare work, and in opening up new avenues of investigation. Social service work has not been given the recognition which its importance in the campaign merits.

Law Enforcement.

On the 9th of December, in the year 1915, the West Australian Venereal Disease Act came into being. On October 31st, 1917, New Zealand brought in a similar but more limited Act, and in the years 1918 and 1919 several provinces in Canada made legislation of a like nature.

The main features of the Acts are the same in all of the provinces. These features comprise, compulsory modified notification, compulsory examination of suspects and compulsory treatment of infected individuals, regulations prohibiting the sale of drugs and appliances for the cure of venereal disease, except on physicians' prescriptions; exclusion of infected persons from trades, right of entry; detention, quarantine, etc., regulations prohibiting infection of others, etc.

It will be seen at a glance that every effort has been made to bring under control individuals who neglect treatment and are a menace to others. There are, in addition, laws for the suppression of prostitution which have been in existence for a number of years. Latterly the "age of consent" has been raised and attempts have been made to provide legislation penalizing unmarried couples who register at hotels as man and wife. The advisability of penalizing owners of motor vehicles who use or permit their motor vehicles to be used for immoral purposes is under consideration, for it is realized to-day that the motor is replacing the house of assignation to no little extent. The success of the laws depends in great measure on the energy with which they are enforced. Money and the proper machinery, which are so essential for their enforcement are, to a great extent, lacking.

The law of compulsory modified notification—i.e., notification by number until such time as the patient fails to continue the prescribed treatment when notification by name takes place—is not being observed. There are approximately ten thousand physicians in the Dominion of Canada and these reported, for the year 1921, only 15,000 cases of venereal disease—an average of 1.5 for each physician. It is obvious that this is below the actual number of cases. However, it is quite well-known that there is widespread apathy towards reporting wherever the law of notification is in force. Reporting is not compulsory in the Province of Quebec, yet the physicians of this province are reporting their cases, voluntarily, as fully as are the physicians of the other provinces in which reporting is compulsory. In the Province of Quebec, cases attending the clinics are not reported to the Provincial Health Officer either by name or by number and the attendance at the clinics is far greater in this province than in any other. Judging from this, is it not possible that notification tends to keep people away from the clinics? In some clinics it is noted that false names are being given.

The laws of compulsory examination of suspects and compulsory treatment of infected individuals who fail to continue treatment as directed, apply chiefly to criminals, prostitutes and vagrants. These classes are constant spreaders of infection. These two laws are of real value and it is to be regretted that they are not enforced more rigorously throughout the whole of the Dominion. In only one or two provinces are they effectively enforced.

An attempt has been made in the United States to deal with venereal infection, especially as it occurs in inmates of bawdy houses, by placarding the premises in the same manner that premises are placarded for scarlet fever, smallpox, and other dangerous communicable diseases. This has not been attempted in Canada. In this regard the following resolution adopted at the "All American Conference on Venereal Diseases" will prove of interest:—

> "Whereas, since too little information is available for giving a satisfactory statement as to the results of placarding premises quarantined for syphilis and gonorrhoea; and,
>
> "Whereas, because of the nature of the diseases, their prevalance, and the widespread ignorance of their true character;
>
> "It is resolved, that the placarding of premises for the purpose of control of patients will be more harmful at this stage to a developing sympathetic public opinion than the (problematical) control of such individuals will benefit the public welfare."

The Dominion statute prohibiting the sale of drugs and appliances for the treatment of venereal disease, except on a physician's prescription, is rigorously enforced. The Department of Health, Ottawa, refuses to register any proprietary remedy for this purpose and inspectors remove from sale any found on the market. Apparently, very little effort has been made to enforce the other laws which have been enumerated. A multiplicity of laws is to be deprecated. If we succeed in enforcing compulsory treatment of prostitutes and other individuals who, through carelessness and indifference, are spreading infection, we will have accomplished much. The law of compulsory treatment of infected individuals is the one and only law that is of any real value in limiting the spread of infection. It should be more rigorously enforced. More important than laws and their enforcement is the following up of cases and continuation of treatment as long as the physician says it is necessary. Our experience shows that persuasion is a more powerful weapon than compulsion.

STATISTICS.

It is only when one begins to look for venereal disease statistics that one realizes how fragmentary and unsatisfactory they are. The findings of the Royal Commission on Venereal Disease, which were published in 1916, added nothing to our previous knowledge of the prevalence of venereal disease in civilian life. They merely confirmed estimates that had been made a quarter of a century before by venereologists of various countries. Statistics of value, which they gave us of the prevalence of venereal disease in the army and navy, are inapplicable to civilian life.

Since the inauguration of the world-wide campaign against venereal disease attempts have been made to obtain statistics of value and to accomplish this the law enforcing notification of venereal disease was enacted. After a period of three years it is found that we are no whit better off than before. The returns being made by physicians practising in Canada do not, in any measure, represent the true incidence of venereal disease. Syphilis is being reported, but gonorrhoea scarcely at all.

In the year 1921, there were admitted to venereal disease clinics throughout the Dominion 4,914 cases of syphilis, and during the same period there were reported by physicians 6,997 cases, making a total of 11,911 cases of syphilis, or 1 in 714 of the population. The following figures, which are practically classical in that they so closely conform to estimates, are given by Desloges and Ranger for the Province of Quebec:—

"Among the statistics of cases reported 80 per cent. of the total were men and 20 per cent. women. Most became infected between the ages of 21 and 25 diminishing off from that figure both ways. Of these cases 64 per cent. are unmarried, 32 per cent. married, and 4 per cent. widowed. Commercialized prostitution accounts for 34 per cent. and clandestine 36 per cent. Congenital cases are only one per cent. Disease contracted under the influence of alcohol amounts to 25 per cent. of the whole."

There are no figures of any real value of the prevalence of syphilis in civilian life. Drawing conclusions from the draft figures in the American army, 5.6 per cent. would be an outside figure for the ages 21 to 31. The Life Extension institute found less than one per cent. of syphilis in industry and about 3 per cent. in a mixed population. The Mayo clinic found 4.6 per cent. of syphilis in mixed classes. The Royal Commission gave 10 per cent. for the British Isles. Mortality reports of syphilis are just as difficult to

obtain as are morbidity reports, owing to the fact that physicians through kindly motives do not give syphilis as the cause of death.

The total number of cases of venereal disease reported in Canada during the year 1921 was 25,089. This represents 1 in 330 of the population. This is below the usual estimates. Laws enforcing reporting have so far been unsuccessful. There remains only the development of interest and sympathy on the part of physicians towards the work that offers any hope of improvement for the future.

SUMMARY.

1. The clinic is the strongest arm of the campaign.
2. Follow up work, which is so essential, is not done as thoroughly as it might be.
3. The law of compulsory treatment of infected individuals, who fail to continue treatment, is of value.
4. The law of compulsory notification is a failure and may even tend to keep people away from the clinics.
5. The statistics obtained so far are of relative value only.
6. The campaign in its entirety has been productive of much good.

REFERENCES.

Report of "All America Conference on Venereal Diseases," New Legislation for the Control of Venereal Diseases, Clarke. International Journal of Public Health, Sept., 1920. Syphilis and Public Health, Vedder. The Prevention of Venereal Disease, May. The Nation's Health, Sir Malcom Morris.

The Place of the Sanitary Engineer in Public Health

BY F. A. DALLYN, M.E.I.C., B.A.Sc., C.E. (TOR.), *Director of Sanitary Engineering, Provincial Board of Health of Ontario.*

Read before the annual meeting of the Canadian Public Health Association, St. John, N.B., June, 1922.

THERE are two fundamental aspects to most problems in public health. (1.) The medical aspect having to do with the individual. (2) The social or engineering aspect having to do with the environment. Teachers of the "new public health," as it is popularly styled endeavor, and correctly so, to direct your effort and mine against the forces of the enemy and they suggest that the enemy is not the hydra-headed monster our grandfathers painted filth, dirt and disease, which even in our own day and generation is unfortunately too often seen both in industrial and rural areas, but the more dangerous and terrible creatures, "germs of disease" in our biological environment.

These germs of disease when successful, are referred to as infections and there are many modes and sources of infections. Too commonly public and private water supplies, milk supplies and bathing in polluted water is the loophole through which the attacking host carry to success their campaign against their human biological associates. In warfare the forces are under direction of the Commander-in-Chief, but the Commander-in-Chief cannot wage war successfully without H.Q. and trained officers and he must in addition have his technical staff.

In public health the place of the Sanitary Engineer is on the technical staff, and he should be both an engineer of recognized standing in the engineering profession and experienced in public health and sanitation as well. The experiment has been tried, but without success of attempting to direct engineering affairs through officers, who are not engineers, but who are trained Sanitary Inspectors. The officials may hold a medical degree, or they may not. The reason of the lack of success is that even to-day there is a definite lack of technical knowledge of how to accomplish the desired end amongst the persons in professional life and in muni-

cipal offices, who are the recipients of the instructions or reports emanating from officials having to do with the supervision of the public health, or the administering of Public Health Acts.

It is not sufficient to tell a municipality that the water supply is bad or that the chlorination is ineffective. The efficient Board must be in a position to send a trained worker to show the municipal officials how the matter can be remedied. The better the Sanitary Engineer, the better the advice and the cheaper the cost of bringing about the desired changes.

There has been and no doubt will always be a certain amount of friction between the State and Provincial Sanitary Engineers and the Municipal and Consulting Engineers affected by Public Health Acts. So that the State official must exercise a great deal of tact in his dealing with his professional brethren. The writer feels that public health administration has no place for the many codes of ethics which surround the practice of the professions, both of Medicine and Engineering. The campaign takes no account of those who falter or who are found wanting. The destruction of the enemy forces is the main issue and must always remain the object if success is to be assured. Again, it is true that the better the official, the less likelihood is there of destructive criticism from individuals affected by orders or instructions issued in the interest of the public health. Only too frequently, schemes are submitted to State and Provincial Boards, which upon analysis are found wanting, and in a true sense it is up to the Board to suggest a solution. If a Board rejects a scheme on account of some defect capable of remedy instead of effecting a compromise on the basis of the minimum requirement, enthusiasm is dampened and municipal initiative is destroyed. Tact and diplomacy frequently conserve energy and advantage for the cause.

The need of Sanitary Engineers in State and Provincial health organizations must be accepted without question when it is realized that approximately 8 per cent. of the general expenses of the larger urban municipalities is for sanitation and cleanliness as against 2 per cent. under the caption, "Conservation of Health." In Ontario, the schemes presented to the Board with respect to water supply, sewerage, and sewage disposal were estimated to cost over seven and a quarter million dollars in 1921.

The question is frequently advanced as to whether the enterprises included under the caption, "Sanitation and Cleanliness,"—sewers and sewage disposal, refuse collection and disposal, public convenience stations and other sanitation—have a place in the "New Public Health." Without attempting an answer to this question, it may be stated that whether or no such enterprises are best

administered through health departments, they are necessary adjuncts of modern congestion of population in urban centres. These enterprises, together with those relating to the distribution and purification of municipal water supplies, the inspection of plumbing, and the distribution and handling of milk, appear to be the distinct province of the Engineering profession, rather than that of the practice of Medicine.

In the early organization of State and Provincial Boards of Health, Sanitary Engineers, in a few of the States to which they were appointed, took on in addition to the purely engineering and administrative work, a great deal of the epidemiological service directly associated with enteric fever outbreaks and this division more or less continues to this day in States like New York and Ohio, where the State Sanitary Engineer is not only a competent engineer, but in addition a trained epidemiologist with respect to outbreaks of enteric fever.

It appears to the writer that the association of the Engineering departments with the department of Epidemiology has been unfortunate in the past for two reasons:—

The first is that officials without a medical education were seldom in a position to give an expert opinion with respect to the onset of disease, and are rather prone to attribute the cause to the most plausible source without undertaking detailed pathological investigations and bacteriological studies.

This, I take it, is not within the province of the Sanitary Engineer, although as already has been stated in many States and for a considerable period much of this work has been relegated to the Sanitary Engineering Department, in view of the frequent association of the outbreaks with a polluted water supply.

Secondly, epidemiology, which deals with the control of outbreaks, as the name implies, should not be the consideration of the Engineering Department, since their chief concern and effort should be directed to forestalling outbreaks,—putting it another way,—the work of the Engineering Department should be not in locking the stable door after the horse is stolen, but in addressing itself to the discovery of loop-holes through which an invasion might obtain access and upset an environment, which has been built up coincident with the tremendous concentration of population under urban conditions.

I think that the chief business of the Engineer is to modify the condition of environment, in contradistinction to the aim of Medicine to adapt an individual to an uncontrollable environment. If this

is accepted as the proper contribution of Sanitary Engineers, then in addition to the activities now associated with the distribution and protection of water supplies and the collection and disposal of Municipal wastes, including sewerage, there should be added the supervision of those great public utilities, which especially are now part of the environment of the individual. I refer especially to such things as the milk supplies of our municipalities, the drinking water supplies of common carriers and the prevention of nuisances such as smoke and odours, associated with the industrial life of our urban communities.

There is a question in the writer's mind as to whether or not the Department of Statistics might not be well relegated to the Sanitary Engineering service, and made a part of that division. The task of measuring up has been conceded to be an engineering matter, and it does not appear that there is anything like enough advantage taken, of even the statistics that do exist with respect to mortality and morbidity, in our various urban and rural centres. It has always appealed to the writer that if such figures were carefully analyzed and the information distributed to those groups of the population most interested that we might direct enthusiasm, which is quite evident in matters related to public health, along channels which would show a net return from the enterprise.

The burden of taxation, so much increased by reason of obligations contracted during the war, is beginning to have a distinct effect upon appropriations available, even for public health activities, and it appears that the more complete our information as to the essential thing needed in a community, the better the Department is placed with reference to the distribution of such monies as are available. There has been, in the writer's opinion, too great a tendency for one municipality to copy the enterprise "holus-bolus" of another centre without definite study as to the thing needful in that particular centre. Sometimes a great many things are needed, and there is no difficulty in arriving at an agreement to that effect, at the same time it will be admitted that many of the things attempted are not capable of solution, from our present knowledge, and we would be well advised to limit our effort to things capable of attainment until such time as research has revealed the proper mode of attack with reference to other activities.

In summing up, therefore, I would suggest that the place of the Sanitary Engineer in Public Health is to regulate as far as information and legislation will permit, the environment of the individual, especially as that environment may be affected by municipal

water supplies, the collection and disposal of wastes, the protection of milk supplies, and the enforcement of sanitary regulations with respect to the production and pasteurization of milk; and the conduct of surveys for the determination of the exact situation with respect to any given municipality as to its use of public utilities such as water supply and sewerage; the determination, also, of the presence of undesirable features, such as private wells in built-up sections and the absence of a sewer connection, associated as it must be with other types of conveniences—closets, privy vaults and the like, and to generally co-relate information as to public monies spent on sanitation and cleanliness in municipalities, with that spent for other civic enterprises—it is a very small percentage, by the way—and, finally, to co-operate with, or absorb the statistical departments of the health bureaus with the idea of making the information now lost in the voluminous vital statistic returns, available for the information and use of the various social agencies which are assisting in the great problem of public health.

The fact that Sanitary Engineering as we now understand it has had a long association with the activities of Provincial and State Health bodies, usually under the direction of a Chief Officer, whose qualification in the practice of medicine was a statutory requirement, has been to the mutual advantage of both professions, and undoubtedly the "New Public Health" is an offspring of that union. The present cry for a severance of certain of these activities from Health Programmes appears to the writer to arise more from the ever-increasing pressure of work, foreign to medicine, now supervised by Medical Officers of Health, than to any desire of the public or the professions for a severance of these old associations.

A study of the Public Health enactments of the last century—and it is only within the latter half of that period that we have witnessed an organized advance—leads one to conclude that accomplishments of the past are coincident with improvements in housing, living conditions, including diet, industrial hygiene and the lessening of the congestion in one and two-roomed tenements.

The influence of these must not be too lightly dismissed before abandoning fields, the fertility of which in the past yielded such returns as to place the modern movement in its enviable position.

Do not make a mistake and conclude that the writer is not in complete accord with the principle of the "New Public Health." He with many others feels that the whole movement has been marking time too long, and that the time is ripe for exploration of new fields,

and that greater advantage might be taken of the scientific information and experimental demonstration at the disposal of the public and the medical profession alike. Whether or not the "New Public Health" can be ushered in by the existing Public Health organizations, staffed largely by officers, whose main qualifications are the right to practice medicine, is a debatable question.

The suggestion has been advanced and something has been written in recent years of the advisability of opening up the administration of public health departments to professions other than that of Medicine. Whether the future will see the Engineer amongst these groups or not, I do not think is of first importance. All professions have contributed great administrators to the world. In public health there is a need for great administrators and, I think, possibly it goes without very much argument that public health organizations should have administrators whether they obtain them from the Medical profession or from any other. It is to be hoped that there will be no striving for place in the "New Public Health." It would hamper the progress of the great movement, which this conference represents.

Co-operation is the watch-word of the day, and it seems to the writer that there is no real reason why jealousies should interfere materially with the progress of public health. There is no reason, nor is there an excuse why in the light of our modern knowledge of the "New Public Health, contributed from so many sources—medicine, pathology, bacteriology, chemistry, biology, and engineering—progress should be arrested by bickering between professions for preferment.

The School Child and Nutrition

By Helen R. Y. Reid, B.A., LL.D.

Read before the Child Welfare Conference, Toronto, September, 1922.

1. Is Malnutrition very prevalent among school children to-day?

Dr. Mitchel's[1] experiment in 1918 with New York school children afforded the conclusion that 16.9 per cent. of the United States school population were 7 per cent. or more under weight, 168,000 out of New York's million school children being thus affected. Dr. Wood[2] of Columbia University records 20 per cent. as malnourished after a study of 22 million American children in 1918. A later Wood study of half a million city and country children estimated 16.6 per cent rural and 7.6 per cent. city children as malnourished. Dr. R. P. Emerson[3] of Boston claims that one-third of American children of school and pre-school age require treatment for malnutrition. (This estimate approximates fairly with the findings of the Montreal Patriotic Fund Clinic in its first 1,000 children when 299 children were found 7 per cent. under weight for their height (29.9 per cent.) The second 1,000 children showed 260 malnourished children (26.0 per cent.), and the third 1,000 showed 204 (20.4 per cent.)

Even more interesting are two studies made by Dr. Josephine Baker[4] in 1909 and 1921 of 356,292 children and 139,770 respectively, which showed that in 1909 about 3.8 per cent. of the children had defective nutrition at the 8 years and under period. This percentage increased until the 8-10 year period was reached, then decreased until the 14 years and over group, when 2.3 per cent. of the children examined were found to be malnourished. In the 1921 study the percentage of malnutrition was approximately 17.0 per cent. at 8 years and under. The incidence increased very rapidly until it reached 21.0 per cent. at the 10-12 year group, then fell off with marked suddenness so that the children in the 14 years and over group showed approximately 15.0 per cent of malnutrition.

A third 1921 study of 243,416 New York school children reported by Dr. Sobel[5] gave a percentage of 17.5 per cent. malnourished, and contrasted this with 19.2 per cent. in 1,061 children of pre-school age examined just before entering school.

2. Why is there such Variation in the Percentages quoted?

This depends on several factors, among which are included the following: The different standards used; the varying personal interpretation by examining physicians, nurses and statisticians; the sex, age and nationality of children in the groups examined, as well as their geographical distribution and the years in which examinations were made.

3. How are Nutrition Standards Established?

"Standards of the physical development of children for the purpose of determining the state of nutrition represent for the most part averages of measurements made by different observers in widely separated communities without reference to racial stock or group distribution. At times these groups include all children regardless of their physical or mental status, also handicapped children as far as these are attending school. These standards also sometimes include records of physical defects and mental status. The most frequently used are those on standing weight and height.

It is very generally recognized, however, that attention should be given not only to height and weight standards, but to the presence of other factors and defects, to poor health habits, home conditions, lack of fresh air and rest and other predisposing causes and symptoms. (Dunfermline Scale.)[7]

Dr. Thos. B. Wood[2] (United States Bureau of Education and Columbia University), established a standard for malnourishment if a child is 10 per cent. below the average weight established for its age and height. Dr. Emerson[3] makes this 7 per cent., and says "to be habitually 7 per cent. under weight is to be retarded at least one year in development." The Illinois Child Labor Law of July, 1917, tentatively provided standards for the 14-year-old child of 80 pounds and 55 inches. This was later lowered to a minimum of 75 pounds and 55 inches. (See Child Welfare Standards of Childrens' Bureau.)

4. How are adequate Food allowances estimated?

In establishing methods for determining adequate food allowances for children of different ages, provision is made for the proper amount of protein, fats, mineral elements, vitamines, and the correct number of calories. Types of food are usually suggested for the amount required for adequate nutrition. The kinds of vegetable, cereal, fruit, fat or meat, will vary according to the custom of any given nationality.

Other nutritional standards and food allowances for children were used for mass feeding in Central Europe during the food block-

ade and afterwards, when the tragic folly of the war prevented food reaching the enemy's children and later sent in supplies at great cost of labour and money to try and bring back from the grave the little ones at first abandoned to their fate. These continental standards for mass feeding are associated with the names of Drs. Clemens Pirquet[8] of Vienna, and Rohrer of Germany, whose systems of nutrition have proved exceedingly useful. These were based on Rubner's theory of the proportion existing between energy and expenditure (and therefore food intake) and the external surface of the body. A formula was obtained for the relations between weight, sitting height, and absorbing intestinal surface which was used in what Dr. Pirquet called his Pelidisi system. The essentials of this were three, viz.,—relation to height and weight, statement of the values of the various foodstuffs in terms of milk, and recognition of the bodily demand for protein and vitamines. The Rohrer formula used in Germany was finally abandoned as unsatisfactory. To nutrition workers who think in terms of calories not Nems, and of individual treatment not of feeding thousands and millions, the logarithmic calculations involved in these systems seem somewhat terrifying!

5. Is Malnutrition a fundamental handicap? Yes, because "it affects height and weight, interferes with general development, delays puberty, lowers vitality, makes every child susceptible to infection with less chance of recovery and more chance of relapse. It is likely to precede tuberculosis, to produce rickets, and it retards mental development as two or three times more cases of malnutrition are found in retarded mental cases than in normal mental cases." A mass illustration is available in a 1921 official report on Effects of Underfeeding on the Health of German Children: "In some of the industrial cities 50 per cent., and in some of the largest cities 70 per cent. of the school children are seriously undernourished. The physical condition of the children now entering school is considerably worse than that of the entering classes of previous years. The height of the children of almost all age groups is below the average height of children of the same groups in 1913-14, while in some of the large cities the average weight of the children is five pounds less than the figures for those years. The capacity for study is decreased, the early mental fatigue and weakness of memory are evident. Tuberculosis is much increased, and it was found that 40 per cent. of the children between 6 and 15 years of age in the larger cities show tubercular infection. Rickets and scurvy are widely prevalent and in some places their incidence is even increasing."

6. Can Malnutrition be best attacked in the home or in the school, or in both?

Malnutrition classes are easily formed from the school or institutional groups. School lunches, open air classes, organized athletics and recreation give definite returns in health and can be instituted in schools, thereby reaching large numbers of children provided an educated public agrees to vote sufficient money for these legitimate and praiseworthy objects.

B. B. Burritt of the N. Y. A. I. C. P., maintains, however, that the chief emphasis must be placed on the Home in any campaign that is to be really preventive in character, for the interesting reason that nutrition work has to be done with the group of children who are too young for the class method of treatment. This conclusion is confirmed by Dr. Josephine Baker and Dr. Sobel, whose findings and comparisons have already been quoted. Dr. Baker's summing up of her study on the need for physical examinations includes the following illuminating statements: "A logical deduction that might be drawn from this study is that great emphasis should be placed hereafter upon the pre-school age period as the time when physical defects (including malnutrition) should be prevented or corrected."

Following this pre-school trail we may justifiably quote Dr. Julius Levy, of the New Jersey State Board of Health, who says "that malnutrition of the child of pre-school age is largely the result of improper care and feeding in the first year of life. Secondly, that it is the result of unnecessary and improperly managed contagious diseases, and thirdly that it requires for its cure more the application of the rules of hygiene, nutrition and discipline and training than it does the administration of drugs and medicines." And so we hark back to the protection of maternal and infant life if we are to have well-nourished school children. The home as well as the school needs Education in Health, and the parents as well as the children must be reached by the same thorough and enthusiastic influences which are now so generally directed to the child in school. We must realize again the oneness of life, the influences of heredity and environment and the necessity of "grappling with the whole child situation." For our failure to realize this we are still paying the price in the juvenile courts, in our orphan asylums and poorhouses, in our hospitals, in the loss of our economic efficiency and in our malnourished school children."

[1]"Malnutrition and Health Education." David Mitchell, M.D.
[2]"Health Essentials for Rural School Children." Thos. D. Wood, M.D.
[3]"A Group Study of the Results of One Hundred Physical and Mental Examinations of so-called Well Children." Wm. R. P. Emerson, M.D.
[4]"School Health Supervision . . ." S. Josephine Baker, M.D., New York City Monthly Health Bulletin for June, 1922.
[5]"Examination of Pre-School Age Children." American Red Cross, New York Chapter.
[6]"Heights and Weights of School Children." Public Health Service, U.S.A., Report No. 20, 19th May, 1922.
[7]"Monthly Bulletin, September, 1922, New York City Department of Health. Dr. Josephine Baker, New York City Monthly Health Bulletin for June, 1922.
[8]"Recent Applications of the Principles of Nutrition." Drs. Violle and Merrill, American Journal of Public Health, July, 1922.
[9]"The Psychology of Childhood." Norsworthy and Whitney.
[10]"The Undernourished Child of Pre-School Age." Julius Levy, M.D.

Agglutination Phenomena with Diphtheria Antitoxin

By P. J. Moloney and L. O. Hanna.

(From the Research Division, Connaught Antitoxin Laboratories, University of Toronto, Toronto, Canada.)

In search for an in vitro test for diphtheria antitoxin the following observation was made: (*a*) When an emulsion of the diphtheria bacillus, Park 8, is mixed with diphtheria antitoxin, allowed to stand at 37° C. for 1 hour, centrifuged, washed with saline and re-suspended, it is no longer agglutinated by diphtheria-agglutinating serum. (*b*) The organisms sensitized in this way are inagglutinable by acid agglutination.

In this test for the inhibition of acid agglutination the cells are suspended in a buffer solution which gives a maximum agglutination with unsensitized cells. The point of maximum agglutination for acids varies somewhat depending on the culture and the buffer mixture, but for phthalate mixtures (Clark and Lubs) diluted 1-1 with distilled water is about Ph 4.2 for a three or four-day broth culture of the Park 8 strain.

To determine the specificity of the test for diphtheria antitoxin, experiments were carried out along four different lines.

1. The following sera were used in place of diphtheria antitoxin and the test carried through: normal human serum, positive T.B. human serum, normal guinea pig, concentrated tetanus antitoxin, fresh antitoxic serum, normal horse, normal sheep, normal rabbit.

In the above experiment there was inhibition of agglutination when the cells had been sensitized with antitoxic serum and with tetanus antitoxin; and when the other sera had been used there was agglutination. A guinea-pig test with the tetanus antitoxin showed that it contained diphtheria antitoxin, and it was subsequently dis-

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covered that this tetanus antitoxin was from a horse which had previously been used for the production of diphtheria antitoxin.

When diphtheria bacilli are sensitized with diphtheria agglutinating serum instead of antitoxin there is inhibition of agglutination when the cells are subsequently subjected to serum agglutination but acid agglutination is not inhibited.

A possibility which was kept in mind was that the effect with antitoxin might be due to the presence of agglutinoids in antitoxic serum. In an attempt to check this, agglutinating serum diluted (1-10) was heated 75-80° C. for 1 hour and subsequently used in the test; both with acid and serum agglutination there was no inhibition. One might conclude from this experiment that the agglutinins were destroyed by the high temperature and that no agglutinoids were produced. Up to the present attempts to produce agglutinoids from agglutinins have not been successful.

2. An emlusion of diphtheria organisms incubated with a mixture of antitoxic serum and diphtheria toxin in suitable quantities is subsequently agglutinated both by acid and by diphtheria-agglutinating serum, whereas if the toxin is replaced by an equal volume of broth the cells are not agglutinated. The conditions for this experiment are limited by two factors: there must be sufficient antitoxic serum to sensitize the cells, and an excess of toxin.

Diphtheria organisms sensitized with antitoxin are rendered agglutinable by mixing with diphtheria toxin, centrifuging, washing with saline and re-suspending.

Diphtheria toxin has this same neutralizing effect on diphtheria-agglutinating serum. From this one might conclude that diphtheria toxin contains agglutinogens besides true toxin.

3. In an attempt to apply the test quantitatively two general methods were used: Organisms were sensitized with progressive dilutions of antitoxic sera and the limit of inhibition read as the end point; and mixtures of serum and toxin after standing 1 hour at room temperature were added to sensitized cells directly, and after dialyzing—it had been found that toxin dialyzes through parchment paper—and the dialysate mixed with sensitized cells which were subsequently tested for agglutinability.

Neither method gave results which were uniformly consistent with guinea-pig experiments. Using the first method some results were obtained which were parallel to the guinea-pig tests, in other cases the results were reversed, *i.e.*, in some cases two sera which by Ehrlich's method gave, *e.g.*, 300 A.U. and 150 A.U. per c.s. re-

spectively showed by this test that the second contained more antitoxin than the first.

In this connection it is well to recall that according to the work of Roux,[1] Danysz,[1] Momont[1] and Cruveilhier,[2] the results obtained with antitoxic sera by Ehrlich's method do not always parallel those obtained by the French method—a method which has at least the merit that its results are based on animal experiments, the conditions of which correspond in a measure to those which obtain in the actual treatment of the disease. These workers claim that in some cases the results are not only not parallel but may even be the reverse of each other. On the other hand according to the work of Marx[3] the two methods give parallel results. No comparison between the test described here and the French method has yet been carried out.

4. It would be of interest to know whether washed diphtheria organisms do actually take up antitoxin. A carefully controlled experiment to test this was carried out. Organisms which had been washed several times with saline were mixed with a known amount of antitoxin, allowed to stand for 1 hour at room temperature, centrifuged and the supernatant liquid drawn off. A guinea-pig test with an appropriate amount of toxin showed a fall in antitoxic content of the mixture. The difficulty with this experiment is that it is not known when the cells are sufficiently washed. It is proposed to repeat this experiment in the following way: Wash diphtheria cells several times and then wash again batches of these cells and test the first and progressively washed lots to see whether a point is reached where the drop in antitoxin reaches a constant.

SUMMARY.

Both acid and serum agglutination of Park 8 strain of *B. diphtheriae* are inhibited when the organisms are first sensitized with diphtheria antitoxin; when diphtheria-agglutinating serum is used instead of antitoxin, serum agglutination is inhibited but not acid agglutination.

This inhibition phenomenon with antitoxin is specific, at least for the Park 8 strain.

It is not definitely established whether it is a test for antitoxin;

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[1]Abstract in the "Bacteriology of Diphtheria"; Nuttall, Graham, Smith, 1913. 525.

[2]Cruveilhier, *Ann. Inst. Pasteur*, xix. 1905, 249.

[3]Marx. *Zeit. f. Hygiene*, 1901, xxxviii. 372.

it is possible that the phenomenon may be due to agglutinoids, or to a diphtheria antibody not noted heretofore.

Nicolle, Debains and Césari[4] have described a qualitative test for toxin and antitoxin which is based on a precipitin reaction. It is evident from the results above that while the test may be specific for the diphtheria bacillus and for the other organisms used by them, it should be subjected to further investigation before it can be accepted as specific for toxin and antitoxin as defined by Ehrlich's quinea-pig test.

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[4]Nicolle, Debains and Césari, *Comp. rend.*, 1919, clxix, 1433.

T. B. Sera—All will not show agglutination, but all will show the above phenomenon.

Canadian Social Hygiene Council

The following report covering activities for the year has just been received from the British Columbia Social Hygiene Council:

1. Some hundred meetings have been addressed in Victoria and the Island.

2. In propaganda work more than 80,000 pamphlets have been distributed on the Island, in the Queen Charlotte Islands and on the mainland.

3. Rather more than 600 letters have been sent, largely dealing with enquiries.

4. The work was presented to the B. C. Municipalities at their meeting in Kamloops on October 5th last, and the matter was incorporated in their minutes. Kamloops itself was also worked.

5. Meetings have been addressed at Vernon, Kelowna, Rutland, Nelson and Penticton, where the interest is still growing.

6. Prince Rupert has signified their willingness to co-operate and arrangements are in train for organizing a branch there.

7. Centres have been formed at Duncan and Nanaimo.

8. Study groups have been formed among the women, in order that a thorough knowledge of the problem may be spread among the various women's societies.

9. The Gyro Club of Victoria acting under the Council has undertaken to carry on the work among the younger men.

10. The Anglican, Methodist and Presbyterian Churches have agreed to aggressively take up the work, and have committees at work.

11. Arrangements have been made for a weekly article, dealing with Social Hygiene, to appear in the newspapers.

12. In Victoria 461 public placards have been placed advertising the Clinic, etc., and some 300 also in Vancouver. In addition, in the latter city, boxes containing literature for free distribution have been placed, and thousands of pamphlets are being taken.

13. Five pamphlets have been put forth by the Council, and others are in preparation.

14. In the Kootenay District committees are now being formed at Kelso, Fernie, Cranbrook, Creston, Nelson, and Trail, and some other smaller points.

Canadian Tuberculosis Association

BROADCASTED BY RADIO DURING THE WEEK OF SEPTEMBER 4TH AT THE CANADIAN NATIONAL EXHIBITION, TORONTO.

THOSE who are listening in to this message, may be unaware as to what exactly is the function of the Canadian Tuberculosis Association. It is a voulntary organization, whose constitution defines its objects as follows:

1. By enlisting the co-operation of the people generally with the medical profession, and by increasing the interest in means of lessening the ravages of the disease.

2. By investigation into the prevalence of tuberculosis in Canada, and by collecting and publishing useful information.

3. By advocating the enactment of appropriate laws for the prevention of the disease.

4. By co-operating with governments and other organizations in measures adopted for the prevention of the disease.

5. By promoting the organization and work of the Provincial Associations and their affiliation with the Canadian Association.

6. By encouraging all concerned to provide suitable accommodation for consumptives, in hospitals, sanatoria, and otherwise.

7. By such other methods as the Association may from time to time adopt.

They are broad, far reaching, and yet limited. It would seem after the lapse of years since they were first adopted, they have only enriched themselves in their adaptibility to changing times, facts, and requirements.

The three principal items of programme adopted within the present year, are anticipated in the first object named. With the hope of finding cases everywhere earlier in their state of development, we have planned to assist in the establishment of diagnostic clinics within the reach of all, to facilitate all the public submitting themselves to examination. Further, we have included in our scheme the provision of the services of those most expert in diagnosing chest cases, namely, the visitation to these clinics, of the salaried medical staff of the sanatoria, to co-operate with the local physicians and assist them without cost to themselves or their patients, to receive expert opinion.

It was estimated this spring from information gathered by this office that considerably over a hundred municipalities in Canada had provided themselves with Public Health Nurses, part of whose work was in the interests of the anti-tuberculosis campaign. During the enquiries we were able to learn of only 29 or 30 of these same centres which had diagnostic chest clinics operating. Recently we made a further inquiry from cities in Canada, scattered from coast to coast, and found that 22 out of 29 furnishing information, possessed public laboratory facilities doing examinations of sputa. They report 8,650 examinations with 1,508 positive findings. In only one case, that of the city of Montreal, does its positive findings exceed that of the negative results. Twenty cities report having Public Health Nurses doing tuberculosis work and 14 of them report a total of 35,355 visits, presumably pertaining to tuberculosis work. Thirteen of the cities report having chest diagnostic clinics, and eleven of them give a total of 40,285 visits for consultation purposes. Seven cities report 8,856 individuals as being on the attendance register of their clinics for the year.

It is evident from these figures that much remains to be inaugurated, and very much increased effort is desired to make more efficient the existing agencies. A more perfect understanding of the benefits to be derived should be brought home to the physician and the people. Doubtful and suggestive cases should be referred early for submission to all the scientific methods and facilities available to establish that tuberculosis probably does not exist or that it does exist in an early form which will easily subside under proper care, will not be infective to others and will not progress far enough before healing, to leave a permanent debilitating handicap on the individual's efforts to follow his ordinary or desired pursuits in life.

The presence of disease in the whole Province does not appeal to the interests of some people. It is necessary for them to be informed that there are at least two children attending the same school as their Georgie, who have tuberculosis in a sufficiently advanced state, to require immediate institutional treatment. This was found to be the case in every 200 children, presumably well, and attending school, in Saskatchewan, the province which has the least tuberculosis, according to its death rate, of all the provinces of Canada. We need funds and personnel to survey the children of at least one county population in each province.

It is the duty of all of us to join our intelligent friends and

insist upon a stock taking. The governing bodies will do exactly what most of the people favor, if they know their action will be approved.

More money spent, and more activities instituted, which are known to be productive of curtailment of the disease, would assure the increased happiness we desire.

Social Background

The Church as a Social Agency

THE CHURCH AS AN ORGANIZER OF PHILANTHROPIC ENTERPRISES.

F. N. STAPLEFORD, M.A.

THE Social spirit has become so all pervasive that there is scarcely an organization or an individual which has not felt its impulse. There is an ever-sharpened edge to the sense of responsibility felt by those who have some margin of means and leisure to devote to Community Welfare. An English statesman has called this "a voluntary tax on the unearned increment of social advantage." This movement is likely to receive a great impetus, due to the fact that very large numbers of people felt during the war (perhaps for the first time in any clear cut way) the joy of service and many of these will be loath to sink back into the boredom of selfish indolence. The field is inexhaustible, for no single organization, movement, or social theory can gather the whole complex, within itself. If properly organized and administered each contributes its own modest quota to the sum total of human progress and welfare.

In this great movement—this tidal wave of social endeavour, what is the place of the Church. The Church touches the problem at many points. One very concrete point of contact lies in the fact that the church itself is an organizer of philanthropic enterprises and operates, by means of a group of churches in a district or through some department representing the nation-wide church body, Orphanages, Rescue homes, downtown Missions, Hospitals, and other forms of social service work, the financial burden of which would be too great for any single local church.

In spite of the great development of secular agencies, the church is still strongly entrenched in this field of practical social work. Probably more than two-thirds of the practical, as distinct from the propaganda organizations in Toronto, are still definitely under the church control.

The Christian Church has always engendered social sympathy and very early the formulation of organizations under church control, for the humane care of dependent classes, has been a natural expression of this feeling. The question now at issue is as to whether the time has come for the church to surrender this function to the state or secular organizations. The church has been the originator of many great movements the control of which afterwards passed into other hands. In western civilization, education found its first home and early nurture within the church. This function has now been to a large extent surrendered to the state and outside the Catholic Church, there seems to be a fairly universal feeling that the change has been beneficial. Social workers are asking themselves whether a similar process is not going on in regard to social institutions and agencies. Having initiated so vital and fruitful a movement, has the time come in the interests of future development to surrender control, while still fulfilling its important function of being the inspirational force behind social work? The arguments for and against this proposal may be summarized as follows:—

(1) It is to the advantage of the church as an organization to have control of these definite social service institutions. It is practical demonstration to the world that the church takes its social duties seriously. It presents an obvious connection, between faith and practice, and having aroused social sympathy by its teaching presents some definite avenues through which this may find expression.

(2) The church can make sure that the workers taking charge shall be actuated by the loftiest idealism. Religion should be the spirit behind social work and it is of the highest importance that the workers should go to their work as an opportunity of service and not simply as one vocation or task. A mechanical and soulless administration is thus prevented.

There are, however, some important considerations to be presented on the other side.

(1) As a matter of actual practice the church has sometimes used social service institutions for propaganda purposes. An Orphanage may be valued not simply because there is a social need to be filled which the church undertakes to meet in an unselfish spirit of service but as a means of making sure that children will be brought up according to the tenents of some particular faith. This unconsciously influences the attitude of those in charge so that the terms of admission are sometimes not properly guarded.

(2) The church seems to be under a contsant temptation to let

good motives be a substitute for efficiency. It places large emphasis upon the psychology of the worker, his ideals and attitudes but is very apt to forget that social work is a profession requiring definite training and technical equipment. It should not be necessary to emphasize the fact that good-will is not alone sufficient, that a worker may have a fine religious spirit but blunder terribly in her work. This is partly also the result of the churches' mania for getting things done cheaply. In the long run an over emphasis on the motive of sacrifice reacts disastrously upon the standards of the work. On the whole, it may be fairly said that while many church institutions are vastly superior to some of the voluntary, or state institutions of a similar kind, yet on the whole, they rarely reach the standards of the best of the secular institutions.

If the policy be adopted of surrendering control of social service organizations it will of necessity remain true that the church must establish a close connection between the individual, roused by religious motives to a willingness to serve, and the actual avenues through which this noble emotion may express itself. It is not sufficient for the church to say to the individual "Go serve", but it must also answer the question "How serve and where". In every city and countryside there are great movements and organizations which would spring forward with renewed vigor if reinforced by men and women filled with enthusiasm and zest for humanity. The fight against disease, that ancient enemy of man, the manifold forms in which childhood is protected and developed, the reaction of greater safeguards and securities of life for women, the humane and scientific care of society's dependents, form a few of the avenues through which the social energies of religious people may be directed.

In her little book, "The Good Neighbour," Miss Richmond gives a concrete instance of what may be done in this regard, she says, "I am forcibly reminded of one who was called from this earth some years ago, but whose ministry in a large city church still remains an inspiration to many. His creed and mine differed widely and I seldom heard him preach, but there was no public task with which I was associated that did not show the influence of his daily endeavour to apply the gospel of Christ to the life of the city in which we both worked. The city's great network, with its tangles here, its gaps there, its complex of relations, political, educational, industrial, social—this huge net and its motley contents he saw largely and sanely, but with an intense compassion for the spiritually undernourished that were caught within its mesh.

Having in mind always that the exercise and development of the members of his own congregation in the Christian life was his highest duty, he set himself the task of studying first the needs of the city in which they lived; then the possibilities both social and spiritual of the many agencies created to meet these needs; and last, the aptitudes and capacities of his people. The city was their workshop and into it he fed them freely, associating them with every uplifting work that was going forward. Some of his men visited prisons and became volunteer probation officers in charge of individual boys, others founded an equitable loan company for the poorer sort of borrowers, and many worked hard in municipal campaigns. The women of his church visited families in distress under the best guidance that he was able to secure for them, and gave efficient aid on hospital committees and in children's work.

The church had no group of charitable buildings, no new charities to which it could point with pride; it was the city as a whole that bore eloquent witness to the power of his preaching.

Sometimes it seemed to me, an onlooker, that he played upon the community as upon a great organ, drawing from it new and inspiring spiritual harmonies."

The Provincial Board of Health of Ontario

COMMUNICABLE DISEASES REPORTED FOR THE PROVINCE FOR THE MONTH OF OCTOBER, 1922

COMPARATIVE TABLE

Diseases.	1922 Cases	1922 Deaths	1921 Cases	1921 Deaths
Smallpox	21	1	16	0
Scarlet Fever	369	5	154	15
Diphtheria	395	40	685	56
Measles	166	0	16	3
Whooping Cough	149	11	129	7
Typhoid	111	32	100	30
Tuberculosis	175	112	176	118
Infantile Paralysis	38	2	21	4
Cerebro-Spinal Meningitis	4	4	4	4
Influenzal Pneumonia	—	14	10	5
Primary Pneumonia	—	137	—	129

VENEREAL DISEASES.

	1922 Cases	1921 Cases
Syphilis	229	271
Gonorrhoea	170	256
Chancroid	2	4
	401	531

Notes on Current Literature

FROM THE HEALTH INFORMATION SERVICE, CANADIAN RED CROSS SOCIETY.

Tuberculosis Leaflet.—An attractive leaflet recently issued by the Canadian Tuberculosis Association on the benefits of Sanatorium treatment for the tuberculous. Copies may be obtained upon application to the Canadian Tuberculosis Association, Bank Street Chambers, Ottawa, Ontario.

Travelling Health Clinics.—A pamphlet recently issued by the Nova Scotia Division of the Canadian Red Cross, on the work of the travelling health clinic in Antigonish County. Copies may be obtained upon application to the Nova Scotia Division, Canadian Red Cross Society, 63 Metropole Building, Halifax, N.S.

Tuberculosis in Childhood.—A medical basis for a programme for prevention and treatment of tuberculosis in childhood. ("Journal of the Outdoor Life", November, 1922, page 364.)

Health Education.—Symposium on how to promote progress in health education and publicity, discussed at the recent annual meeting of the American Public Health Association. ("Public Health", Michigan, October, 1922, page 739.)

The Ideal Health Department.—A Committee of the American Public Health Association details the organization of an ideal health department for a city of 100,00 population. ("American Journal of Public Health", November, 1922, page 891.)

Our Knowledge of Vitamines.—The present status of our knowledge of the vitamines and its application to the dietary. ("American Journal of Public Health", November, 1922, page 908.)

Milk.—Observations conducted by the United States Public Health Service indicate that dried milk powders and their re-made products are safe foods for infants. ("Public Health Reports", U.S.P.H.S., October 6th, 1922, page 2415.)

The Industrial Schools of Canada.—The report of the inspection of Industrial Schools in Canada by the British Government Inspector of Reformatory and Industrial Schools in England. ("The Child", October, 1922, page 7.)

The Control of Venereal Diseases.—What can be accomplished through Public Health Nursing and Social Service. ("The Public Health Nurse", October, 1922, page 529.)

Malnutrition in School Children.—Comparison of methods of determining malnutrition in school children, based upon the Pelidisi method, the Wood height and weight scale, and physical exam-

inations recorded by the Dunfermline scale. ("Monthly Bulletin", Department of Health, New York City, September, 1922, page 201.)

Health in Europe.—A series of three reports from the Health Section of the League of Nations giving recent epidemiological intelligence from Europe.

1. Eastern Europe in 1921.
2. Epidemics in Russia since 1914.
3. Epidemics during the first quarter of 1922.

Recent Advances in Sanitation.—By George C. Whipple, professor of Sanitary Engineering, Harvard University, Cambridge, Mass. ("Health News", September, 1922, page 196.)

Mortality from Tuberculosis.—The unnecessary casualties of Tuberculosis as described by Dr. F. Humbert, Chief, Division of Popular Health Instruction of the League of Red Cross Societies. ("The World's Health", August, 1922, page 376.)

Encephalitis Lethargica.—A report recently issued by the British Ministry of Health.

School Clinic Records.—A description of a simple process of record keeping that has worked smoothly and conveniently in a small British clinic with about 150 attendances a week. ("The Medical Officer", August 19th, 1922, page 75.)

Physical Defects in School Children.—The relation of physical defects to sickness as studied among over 3,700 school children absent from school on account of sickness. ("Public Health Reports", U.S.P.H., September 8th, 1922, page 2183.)

Diet and Good Teeth.—Miss Gillett, of the Association for Improving the condition of the poor, New York City, explains why dietitians should believe in oral hygiene. ("American Physical Education Review", September, 1922, page 318.)

The School Nurse.—The duties and responsibilities of the school nurse described by Dr. Taliaferro Clark of the United States Public Health Service. ("Public Health Reports", U.S.P.H., September 8th, 1922, page 2193.)

Office Administration for Health Organization.—Office administration for organizations supervising the health of mothers, infants and children of pre-school age, with special reference to public health nursing agencies. (Children's Bureau publication, No. 101, Washington, D.C.)

Commonsense in Factory Ventilation.—By C. E. A. Winslow, Professor of Public Health, Yale School of Medicine and Chairman of the New York State Commission on Ventilation. ("The Nations Health, June 15th, 1922, page 359.)

News Notes

November 13th to 19th in Cancer Week in Canada and the U.S.A. Efforts are being made to give as much publicity as possible to the increase in the mortality from this dread disease. The Academy of Medicine, Toronto, was honoured recently with an interesting address by Professor Carter-Wood of Columbia University, an authority on the subject.

The Toronto newspapers gave a good deal of publicity to the event, and printed long interviews with Professor Carter-Wood. The Provincial Board of Health of Ontario issued an article on cancer, which was published in over 220 newspapers throughout the Province, and in addition the Board has on hand for distribution, two pamphlets on cancer—one for the professional man and one for the layman. These pamphlets go into the subject very fully and should be read by everybody. Copies can be obtained on application to the Ontario Provincial Board of Health, Spadina House, Toronto.

Several meetings have been held under the auspices of the Toronto Board of Health that have had as their purpose a consideration of the problem of feeble-mindedness as it affects Toronto. A Committee was organized with Alderman Dr. Risk as Chairman Mrs. A. M. Huestis as Vice-Chairman, and Dr. E. A. Bott, as Secretary, to go into the matter in detail. In the near future a Research Committee composed of Dr. C. K. Clarke, Dr. George Anderson and Mr. F. N. Stapleford will compile a report relative to the situation. It is hoped that a presentation of the facts to the Board of Control and City Council will lead to the organization of better facilities for the solution of the problem of mental deficiency.

The Ontario Red Cross was at the scene of the Northern Ontario fire with the first relief train. To the Red Cross were entrusted the duties of giving nursing and medical aid; of registering the fire sufferers and making a survey of their needs; and of collecting and distributing clothing. The Provincial Red Cross supplied the staff to carry out these duties—two doctors, twelve nurses, one

social worker and two expert railway men. The local branches throughout the province made and collected clothing and made donations to the relief fund.

In addition to the outpost hospital already established at Wilberforce in Haliburton County, the Ontario Red Cross has established one at Englehart in the Northern Ontario fire zone. These outposts are in charge of 10 nurses and carry on Public Health Education in addition to their ordinary work.

The Canadian Social Hygiene Council has recently organized Ontario branches in Ottawa, Kingston, Peterborough, Newmarket, Orillia and Windsor. There are now eleven Social Hygiene Councils in Ontario. It is expected that after the first of January extensive organization will be commenced in other provinces.

An effort was made by the Secretary of the Canadian Tuberculosis Association on his trip to the western provinces to have the dates for the Canadian Health Congress for 1923 fixed so that June 4th, 5th, and 6th could be occupied by the Canadian Child Welfare Conference, which will probably be held in Winnipeg and the Canadian Health Congress, which will probably be held in Alberta, to begin on the 6th and continue to the end of the 9th. Also that arrangements be made so that the programmes for the two conferences on the day of the 6th should be devoted in each case to considerations which would not cause conflict or overlapping to the interests of those attending both conferences. Further, this week would permit eastern Canadians and U. S. tuberculosis workers to travel west by the Canadian route, meet in Alberta and discuss Canadian tuberculosis undertakings and proceed to the coast with a week intervening between the Canadian week and the meeting in Santa Barbara, the week of Monday, June 19th, of the National Tuberculosis Association.

Mr. Clifford W. Beers of New York, author of "A Mind That Found Itself", and founder of the Mental Hygiene Movement, has been in Canada for several weeks assisting the Canadian National Committee in its work. Mr. Beers helped organize the Canadian Committee in 1918 and he has found that the Society has accomplished much of value during the last four and a half years. Canada

was the second country to organize a National Committee for Mental Hygiene, and because of the progress made by the two Committees on this continent similar bodies have been established in Great Britain, France, Belgium, Australia and South Africa. Mr. Beers expects to visit these various committees in turn and to arrange for an International Mental Hygiene Congress to be held in New York in 1924.

The Ontario Provincial Board of Health has taken over the laboratory of the City of Ottawa, with the staff and equipment. The laboratory will in future be operated as a branch laboratory of the Board. Similar laboratories have already been established at Fort William, Sault Ste. Marie, North Bay, Owen Sound, London, Peterborough and Kingston. Dr. F. L. Letts, D.P.H., will be director of the new branch laboratory at Ottawa.

It is estimated that Mr. Pankhurst, speaking under the auspices of the Canadian Social Hygiene Council has addressed approximately 60,000 persons in different parts of Canada during the last year.

A meeting of the Executive of the Canadian Tuberculosis Association is being held in Ottawa at 7. p.m., November 28th, in the University Club. Important matters of policy will be decided upon at that time.

A proposal to start classes in sex instruction in the Public Schools for parents of the children will be considered at the next meeting of the Chicago Board of Education. This marks a new feature in the campaign for social hygiene. The proposal is to open the school rooms at night and the classes will be conducted by men and women of recognized standing, including clergymen, lecturers, medical men and welfare workers.

The Toronto Social Hygiene Council have inaugurated a series of Sunday night meetings in a large church, in downtown Toronto. Various phases of "Social Hygiene" will be dealt with by well-

known speakers. Community recreation, community music, new educational possibilities and other subjects will be dealt with in the near future. These meetings are held after the ordinary church services are over, and it is expected that they will be the means of attracting large audiences. It is hoped that this type of educational propaganda will do much to further the aims of the Council.

Dr. J. W. Robertson of the Canadian Red Cross and Dominion Boy Scout office, accompanied by the Secretary of the Canadian Tuberculosis Association, is proceeding to the Maritime Provinces the first two weeks in Decmeber. Afternoon and evening meetings are listed for St. John, Moncton, Summerside, Charlottetown, Montague, Amherst and Halifax.

There still continues to be reports of cases of small-pox in the suburbs of Toronto. Mimico and New Toronto have had several cases recently, and in Mimico the Public School was closed for several days under orders from the Medical Officer of Health. One or two suspicious cases have also been reported from Agincourt

Editorial

CANCER.

CANCER killed 2,583 people in Ontario in 1921. This is a death ratio of 88 out of every 100,000 of population, the highest yet recorded for the province. The number of deaths from cancer in 1921 exceeded that of 1920 by 121. Any disease that causes 2,583 deaths in a year and sets up a death rate of 88 is exceedinly serious.

In Michigan the death rate from cancer this year is 86.6 per 100,000 of the population. In Ontario during 1921 the rate was even higher. Cancer is now killing one out of every ten persons over 40 years of age. Many of these deaths are preventable since cancer is frequently curable if recognized and properly treated in its early stages.

A comparative table showing the number of deaths per year from cancer in Ontario since 1902, and the death rate per 100,000 of the population, is instructive. It points out that while one or two of the years' figures show a slight decrease, the general tendency is towards a gradual but steady increase.

Year	No. Deaths	Rate	Year	No. Deaths	Rate
1902	1,048	47.3	1912	1,778	69.4
1903	1,156	51.3	1913	1,806	69.3
1904	1,253	54.8	1914	1,872	70.8
1905	1,224	52.8	1915	1,982	73.8
1906	1,411	60.0	1916	2,012	73.8
1907	1,329	55.7	1917	2,196	79.3
1908	1,348	55.7	1918	2,103	74.9
1909	1,597	65.0	1919	2,182	76.6
1910	1,587	63.8	1920	2,464	85.3
1911	1,602	63.5	1921	2,585	88.1

There is very little difference between the city death rate for cancer and the country rate. During 1920 the rate was 85 per 100,000 of the population. The city municipalities show 1,204 deaths or 48.9 per cent. of the total number, and a rate per 100,000 of 88.4; the towns of 5,000 population had 102 deaths, or 5.8 per

cent. of the total number and a rate of 117.5; while the rural municipalities had 1.118 deaths or 45.3 per cent. of the whole, being a rate of 134.7 per 100,000 of population.

"The facts in regard to cancer are indeed serious," says the most recent report of the Registrar-General for Ontario. Leaving out the consideration that the apparent increase may be accounted for, to some extent by the improvement in diagnosis and more satisfactory death records, the fact remains that the mortality, according to statistical reports, has grown from 16 in 1881 to 88 in 1921 per 100,000 of population.

Hoffman, who has made an extensive study of this subject, points out that his investigations prove that cancer is increasing and that it is a real menace to all civilized mankind. It is probable that the number of deaths yearly in Canada would be not less than 7,000. Cancer comes fourth in our table of mortality. At ages over forty it kills one in eight among women and one in fourteen among men. It is a disease of adult life, and at ages over forty is more destructive of life than either tuberculosis or pneumonia. Its insidious onset often occurs at the most useful period of life, when the father and mother are the greatest service to society. It occurs when the man or woman, from their industry and thrift, might otherwise have had years of ease and comfort before them. Discovered in the earliest stages it is usually readily cured. Once established, the future is hopeless.

The chief hope of controlling the disease seems to lie in a well-planned campaign of public education, embracing facts such as the following:—

(1). That cancer in the early stages gives rise to no pain or symptoms of ill-health.

(2). That the early signs are:—

Any lump or mass in a women's breast after forty.

Any bleeding, however trivial, after the change of life.

Any wart or sore on the lower lip of a man forty-five years of age.

Any sore on the tongue of a man of forty-five years.

Any bleeding from the bowel in a man or woman after forty years.

(3). It should be pointed out that warts, moles or growths on the skin liable to irritation should be removed and that irritation of the tongue and cheeks by jagged teeth, or of the lower lip by clay pipes, etc., should be avoided.